

In the claims:

Following is a complete set of claims as amended with this Response.

1. (Currently Amended) An apparatus comprising:

a first tuner to receive modulated video signals through a video connection and to provide demodulated video signals, the first tuner having a first control line interface separate from the video connection to send and receive control and command data in a first protocol specific to the first tuner at the first control line interface;

a second tuner to receive modulated video signals through a video connection and to provide demodulated video signals, the second tuner having a second control line interface separate from the video connection to send and receive control and command data in a second protocol different from the first protocol and specific to the second tuner at the second control line interface;

a graphics controller to generate generalized instructions for controlling the first and second tuners and to send the instructions to a separate microcontroller, the instructions being generated in a third protocol different from the first and second protocols;

the microcontroller coupled to the graphics controller and having a control line interface coupled through a shared wired control line to the respective control line interfaces of the first and second tuners to receive the generalized instructions from the graphics controller in the third protocol, to identify a tuner to which each instruction is directed, to convert the instructions from the third protocol to the protocol for the identified tuner, and to send and receive control and command data addressed to the respective identified tuner using an assigned address of the identified tuner through the shared control line to the respective control line interface of the respective tuner.

2. (Previously Presented) The apparatus of Claim 1, wherein the tuner further generates command responses in the first protocol and wherein the microcontroller receives the command responses, converts them to the third protocol and transmits the converted command responses to the graphics controller.

3. (Previously Presented) The apparatus of Claim 1, further comprising a third tuner to receive a modulated video signal through a video connection, the third tuner having third control line interface separate from the video connection to send and receive control and command data in a fourth protocol specific to the third tuner, and wherein the microcontroller receives generalized instructions from the graphics controller for the third tuner in the fourth protocol, converts them to the fourth protocol, and transmits them to the third tuner.

4. (Previously Presented) The apparatus of Claim 1, wherein the first tuner first control line interface further comprises an input/output interface to communicate data and control signals in the first protocol to external devices and wherein the microcontroller is coupled to the input/output interface to convert data and control signals between the first protocol and the third protocol.

5. (Previously Presented) The apparatus of Claim 1, wherein the graphics controller comprises a system processor coupled to the microcontroller to generate the commands in the first protocol to control the tuner and to control other functions of the apparatus.

6. (Previously Presented) The apparatus of Claim 1, further comprising a look-up table for the tuner and wherein the microcontroller converts the generalized instructions by applying the generalized instructions in the third protocol to the look-up table.

7. (Previously Presented) The apparatus of Claim 1, further comprising an instruction stack specific for the tuner and wherein the microcontroller converts the generalized instructions by applying instructions from the tuner-specific instruction stack.

8. (Currently Amended) A method comprising:

- generating generalized instructions in a third protocol at a graphics controller to control one of a first tuner and a second tuner;
- sending the generalized instructions in the third protocol to a microcontroller separate from the graphics controller;
- receiving the generated generalized instructions at the microcontroller from the graphics controller;
- identifying a tuner to which the commands are directed;
- determining an address assigned to the identified tuner;
- determining a command protocol for the identified tuner as one of a first protocol and a second protocol, the first protocol corresponding to the first tuner and the second protocol corresponding to the second tuner;
- converting the generalized instructions in the third protocol to tuner control and command data in the identified first or second protocol; and
- transmitting and receiving control and command data to and from the identified tuner using the determined address through a shared wired control line coupled to one of a first and second tuner control line interface corresponding to one of the first and second tuners, respectively.

9. (Previously Presented) The method of Claim 8, further comprising:
receiving control and command data responses in the first protocol at the microcontroller from the first control line interface of the first tuner;
converting the received command response to the third protocol; and
transmitting the converted command responses to the graphics controller.
10. (Previously Presented) The method of Claim 8, further comprising:
receiving at the microcontroller from the graphics controller generalized instructions in the third protocol for the second tuner;
converting the second tuner generalized instructions to tuner control and command data in the second protocol; and
transmitting the second protocol tuner control and command data through the shared control line to a second control line interface of the second tuner.
11. (Previously Presented) The method of Claim 8, wherein converting generalized instructions comprises applying the commands in the second protocol to a look-up table.
12. (Previously Presented) The method of Claim 8, wherein converting the generalized instructions comprises applying instructions from a tuner-specific instruction stack.
13. (Currently Amended) An article comprising a non-transitory machine-readable storage medium having stored thereon data representing instructions which, when executed by a machine, cause the machine to perform operations comprising:
generating generalized instructions in a third protocol at a graphics controller to control one of a first tuner and a second tuner;

sending the generalized instructions in the third protocol to a microcontroller separate from the graphics controller;

receiving the generated generalized instructions at the microcontroller from the graphics controller;

identifying a tuner to which the commands are directed;

determining an address assigned to the identified tuner;

determining a command protocol for the identified tuner as one of a first protocol and a second protocol, the first protocol corresponding to the first tuner and the second protocol corresponding to the second tuner;

converting the generalized instructions in the third protocol to tuner control and command data in the identified first or second protocol; and

transmitting and receiving control and command data to and from the identified tuner using the determined address through a shared wired control line coupled to one of a first and second tuner control line interface corresponding to one of the first and second tuners, respectively.

14. (Previously Presented) The medium of Claim 13, further comprising instructions which, when executed by the machine, cause the machine to perform further operations comprising:

receiving control and command data responses in the first protocol at the microcontroller from the first tuner;

converting the received command response to the third protocol; and

transmitting the converted command responses to the graphics controller.

15. (Previously Presented) The medium of Claim 13, further comprising instructions which, when executed by the machine, cause the machine to perform further operations comprising:

receiving at the microcontroller from the graphics controller generalized instructions in the third protocol for the second tuner;

converting the second tuner generalized instructions to tuner control and command data in the second protocol; and

transmitting the second protocol tuner control and command data through the shared control line to a second control line interface of the second tuner.

16. (Previously Presented) The medium of Claim 13, wherein the instructions for converting the generalized instructions comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising applying the commands in the second protocol to a look-up table.

17. (Previously Presented) The method of Claim 13, wherein the instructions for converting the generalized instructions comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising applying instructions from a tuner-specific instruction stack.

18. (Currently Amended) A video tuner comprising:
a system processor to receive user commands and to generate generalized instructions in a third protocol based on the received user commands to control at least one of a first and a second tuner;

a first tuner having a first video connection to receive wireless video signals modulated over a carrier frequency, the tuner having a first control line interface separate

from the first video connection to send and receive control and command data in a first protocol specific to the tuner to and from ~~from~~ the system processor;

a second tuner having a second ~~first~~ video connection to receive wireless video signals modulated over a carrier frequency, the second tuner having a second control line interface separate from the second video connection to send and receive control and command data in a second protocol specific to the tuner to and from the system processor; and

a microcontroller coupled to the system processor and having a control line interface coupled through a shared wired control line to the first and second control line interfaces of the first and second tuners to receive generalized instructions from the system processor in the third protocol, to identify a tuner to which each generalized instruction is directed, to convert the received generalized instructions from the third protocol to control and command data in the protocol for the identified tuner, and to send and receive control and command data addressed to the respective identified tuner using an assigned address through the shared control line to the control line interface of the respective tuner.

19. (Previously Presented) The video tuner of Claim 18, wherein the first tuner further generates command responses in the first protocol and wherein the microcontroller receives the command responses through the first tuner control line interface, converts them to the third protocol and transmits the converted command responses to the system processor.

20. (Previously Presented) The video tuner of Claim 18, further comprising a third tuner having a connection to receive modulated video signals, the third tuner having a third control line interface separate from the video connection to send and receive

control and command data in a fourth protocol specific to the third tuner, and wherein the microcontroller receives generalized instructions from the system processor for the third tuner in the third protocol, converts them to the fourth protocol, and transmits them to the third tuner through the third tuner control line interface.

21. (Previously Presented) The video tuner of Claim 18, wherein the first tuner control line interface further comprises an input/output interface to communicate data and control signals in the first protocol to external devices and wherein the microcontroller is coupled to the input/output interface to convert data and control signals between the first protocol and the third protocol.

22. (Previously Presented) The video tuner of Claim 18, further comprising a look-up table for the first tuner and wherein the microcontroller converts the generalized instructions from the system processor to first tuner commands by applying the generalized instructions in the third protocol to the look-up table.

23. (Previously Presented) The video tuner of Claim 18, further comprising an instruction stack specific for the first tuner and wherein the microcontroller converts the generalized instructions from the system processor to first tuner commands by applying instructions from the first tuner-specific instruction stack.